JOB REDESIGN: AN ANALYSIS OF AN INTERVENTION TO IMPROVE JOB CHARACTERISTICS

THESIS

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Abstract

The purpose of this study was to determine if a job redesign intervention could improve the job characteristics of a group of company grade officers in an Air Force Program Control office. This phase of the study built upon the foundation laid by the diagnostic phase of Connors (1988).

The survey questionnaire incorporated parts of the Job Diagnostic Survey, the Minnesota Satisfaction Questionnaire and ad-hoc items pertaining to the issues of training, challenge, and the matrix organization. This survey was distributed to the enriched group and a comparison group whose organization was similar in structure and duties.

The data from this phase of the study was compared to baseline and normative data. The criterion variables were the five core dimensions of the Job Characteristics Model and ad-hoc measures. This analysis showed some improvement in the enriched organization for individuals exposed to the entire study. The data also reinforced the possibility that the overall problem may not be isolated to just the studied organizations, but might be job related.

This research should be continued to see if a longer time period with the job redesign intervention improves the job characteristics of the group under study.

JOB REDESIGN: AN ANALYSIS OF AN INTERVENTION TO IMPROVE JOB CHARACTERISTICS

I. Introduction

General Issue

This thesis will center on whether job redesign can effectively improve job characteristics. This issue becomes increasingly more critical as the productivity base in this country lags behind foreign competitors. One possibility for this is job dissatisfaction. Job redesign interventions may help to alleviate these negative trends.

Specific Problem

A southeastern Air Force Base Program Control office was experiencing severe morale problems among its Air Force officers. The commander of this unit asked for assistance in trying to solve this problem. A thesis by Capt Thomas Connors (1988) laid the foundation for the job redesign intervention. The use of an internal open-ended job satisfaction questionnaire revealed significant morale problems. Specifically, sixty-six percent of the respondents indicated problems with general job satisfaction. Fifty-seven percent of the respondents reported a lack of mission involvement, and sixty-six percent indicated a lack of challenge from their job. Finally, seventy-five percent of the respondents felt their

peers were experiencing similar problems (Connors, 1988:2). In additon, the commander felt that the problem was not peculiar to this organization alone.

Research Objectives

The overall objective of this research is to gather data after a job redesign intervention is in place. A survey instrument's posttest scores will be compared with the baseline results gathered by Connors (1988). Specific objectives of this research are:

1. To determine if job redesign can effectively improve the job characteristics among officers in the enriched organization.
2. To determine if the perceived problems identified in the baseline survey results still exist.
3. To determine if the intervention needs to be modified or an alternative action is necessary.

Research Hypotheses

Based upon the above objectives the following hypotheses are posited:

1. It is hypothesized that perceived job satisfaction will improve, over time, with exposure to the intervention.
2. It is hypothesized that perceived task significance will improve, over time, with exposure to the intervention.
3. It is hypothesized that job variety will improve, over time, with exposure to the intervention.
4. It is hpothesized that perceived autonomy will improve, over time, with exposure to the intervention.

5. It is hypothesized that feedback from the job will improve, over time, with exposure to the intervention.

6. It is hypothesized that feedback from agents will improve, over time, with exposure to the intervention.

Scope of the Research

This research does not deal with civilian employees or enlisted personnel. This research studies only Air Force Systems Command officers within one type of organization, a Program Control office. This research is an attempt to measure the effectiveness of a job redesign intervention on the organization's disgruntled company grade officers. This intervention focuses on factors like job challenge, feedback from the job, feedback from agents, autonomy, job significance, job variety, and training. Another group of officers in a similar organization will serve as a control group for comparison purposes (Connors, 1988:5).

Definitions

The following definitions are supplied for those readers unfamiliar with the duties of the two groups under study in this research effort.

1. Air Force Specialty Code (AFSC) 2721 and 2724. Acquisition Project Officer.

> Assists in planning and managing system, subsystem, or equipment acquisition programs which span the entire life cycle of the acquisition process. Performs functions involving engineering, personnel subsystem, data management, configuration management, program control, test, and deployment, or acquisition

program integrated logistics support (ILS) (U.S. Department of the Air Force, 1984:A-10-33).

2. Air Force Specialty Code (AFSC) 6741 and 6746. Cost Analysis Officer.

Conducts quantitative/analytical studies to evaluate cost and effectiveness of force structures, operational systems, acquisition programs, resource management programs, and other support activities. Performs cost and economic (cost-benefit) analyses. Evaluates contractor management control systems and data, serves on source selection cost panels, and prepares financial reports for higher headquarters (e.g., Selected Acquisition Reports (SAR), Unit Cost Reports (UCR), and Defense Acquisition Executive Summary (DAES). Conducts research, provides analysis, and implements and maintains a commander's management system. Plans, administers, directs, and formulates cost analysis office policy, programs, and activities aimed at assisting decision makers at all levels and across functional lines (U.S. Department of the Air Force, 1984:A18-11).

Research Limitations

Because this is a military organization, the movement of personnel into and out of the organization is not under the control of the researcher. It is likely that personnel participating in the final survey will not all be the same individuals who took the initial survey. An item on the post-design survey will ask if the respondents participated in the initial survey. This information will help determine what changes to the initial survey groups have taken place.

Background

Most research on job redesign interventions is in the civilian arena. Yet, military values, attitudes, and terms

are exerting an increasing influence on contemporary organizational culture (Garsombke, 1988:46). The United States Air Force experienced many changes over the last fifteen years similar to civilian industry. This includes the end of Vietnam, the advent of the new Space Command, and the push for computer technology. Budgetary cuts have also created turmoil. With all this we must find better ways of managing our resources, the most valuable being our people. A September 1987 article in the Air Force Times titled "Junior Officers Rate Training Higher Than Pay" explains today's junior officer's philosophy. The article described all military members as concerned about the money that went into their paychecks. Junior officers were distinctive as a group for their insistance that training experiences and leadership have a monetary value. Those officers who decide to remain in military service frequently cite job satisfaction as the reason for staying (Budhan, 1987:9).

One cannot continue in the fashion of the past just because it always worked before. Air Force regulations and military bureaucracy tend to over-specify organizational roles. This regimentation can stifle much needed creativity. Garsombke (1988) argues that many of the criticisms raised against the military center on human elements in an organization: feelings, personalities, values, and human nature. Treatment of the human condition is highlighted as an inherent weakness seemingly encouraged

in the military ideology (Garsombke, 1988:32). This redesign study attempts to dispel the idea that the military lacks concern for the human element. According to Captain Connors (1988), this research should also support the claim that changes in job content can increase job satisfaction (Connors, 1988:21).

Summary

This is only a brief introduction to this research. The specific problem, research objectives and hypotheses have been explained. Its treatment of definitions, scope of the research and limitations lay the foundation for what follows. The next chapter of this thesis delves much more deeply into the relationships between job redesign and job satisfaction.

II. Literature Review

Theoretical Basis

> The aggregate productivity growth rate in the United States has fallen considerably behind that of other industrialized countries such as Japan and West Germany. For example, in the United States, the value of goods produced by each worker increased by 62 percent from 1950 to 1977: the corresponding increases in Japan and West Germany for the same time period have been 531 and 256 percent, respectively. Productivity growth is an important factor in stabilizing our economy. Hence, increased study of the determinants of individual employee performance is important to society in general (Griffin, Welsh and Moorhead, 1981:656).

This philosophy is further emphasized by Garsombke (1988) when she quotes Luis V. Dominguez,

> It is a battlefield....The U.S. economy doesn't grow as rapidly as economies in Europe and Asia do. The gain of sales comes at the expense of competition, squeezing somebody out of the market.

One possibility for decline in the U.S. productivity growth rates may be a lack of job satisfaction. Nash (1983) argues that this results from employees spending their careers in one department of one agency, depriving both themselves and the public of fresh ideas. These themes were surfaced by military officers in the Connors' (1988) study. For instance, comments like the following were typical. "I've been in this job for three years. It has been at least two years since I learned something new." "I'm doing the same job as a Captain that I was doing as a Second Lieutenant".

Research suggests that employees with longer tenure see the job as having less task identity. Those who are comparatively more satisfied will perceive the job as more enriched (Caldwell and O'Reilly, 1982:362).

Work satisfaction, according to Mottaz (1986), is a function of what one expects and what one receives. Satisfaction results when an individual expects little and gets little. At the same time, satisfaction may result if one expects a lot and gets a lot. However, if one expects a lot but gets little, dissatisfaction is the result. If employees react positively to certain task attributes, then an employee's perception that these attributes exist in his/her job should lead to the employee being satisfied and/or performing at a high level (Griffin, 1981:102). These feelings were also described by Caldwell and O'Reilly (1982) in much the same way. In other words, individuals who feel more satisfied with their current surroundings or job describe the task in more positive and socially desirable terms. One way to improve job satisfaction may be through job redesign.

Job Redesign

Hackman and Oldham (1976) define work redesign as changing specific jobs in an attempt to improve both the quality of an individual's work experience and motivate increased productivity. Early scientific management efforts

represented an attempt to simplify, specialize, standardize and routinize jobs. Advocates for this approach believed that simplifying jobs would permit more efficient work, workers would not need as much skill, and profits would increase. Regrettably, these types of jobs also produce unintended by-products. Routine, simplified and nonchallenging jobs lead to job dissatisfaction, absenteeism, and turnover. Coincidentally, the job simplification created substantial difficulties for managers in effectively supervising employees. Management was forced to concentrate more on having enough workers to continue basic operations, rather than on improving working conditions or operations (Hackman and Lawler, 1971:259).

Griffin (1987) noted that individuals spend a large ammount of their lives on the job. This means the nature of the job will influence actions, perceptions and attitudes of the worker. Changes in the job through redesign may make an impact on employee performance. As a result, redesign efforts should attempt to enhance employee motivation, giving rise to opportunities for achievement, recognition, advancement, responsibility, and growth (Hackman and Lawler, 1971:260). To achieve these ends one must understand the relationship between the job, the psychological states of the worker, and outcomes.

The Job Characteristics Model of Hackman and Oldham (1975) is an attempt to model job design-work outcome

relationships (see Figure 1). The model shows relationships between job dimensions, three psychological states, and work outcomes. The three psychological states may be defined as follows:

> (1) Experienced meaningfulness of the work is the degree to which the individual experiences the job as one which is generally meaningful, valuable, and worthwhile.
>
> (2) Experienced responsibility for work outcomes is the degree to which the individual feels personally accountable and responsible for the results of the work he or she does.
>
> (3) Knowledge of results is the degree to which the individual knows and understands, on a continuous basis, how effectively he or she is performing the job (Hackman and Oldham, 1976:257).

The Job Characteristics Model of Hackman and Oldham (1976) goes on to define the core dimensions as follows:

> (1) Skill Variety is the degree to which a job requires a variety of different activities in carrying out the work, which involves the use of a number of different skills and talents of the person.
>
> (2) Task Identity is the degree to which the job requires completion of a whole and identifiable piece of work; that is, doing the job from beginning to end with a visible outcome.
>
> (3) Task Significance is the degree to which the job has a substantial impact on the lives or work of other people, whether in the immediate organization or in the external environment.
>
> (4) Autonomy is the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out.

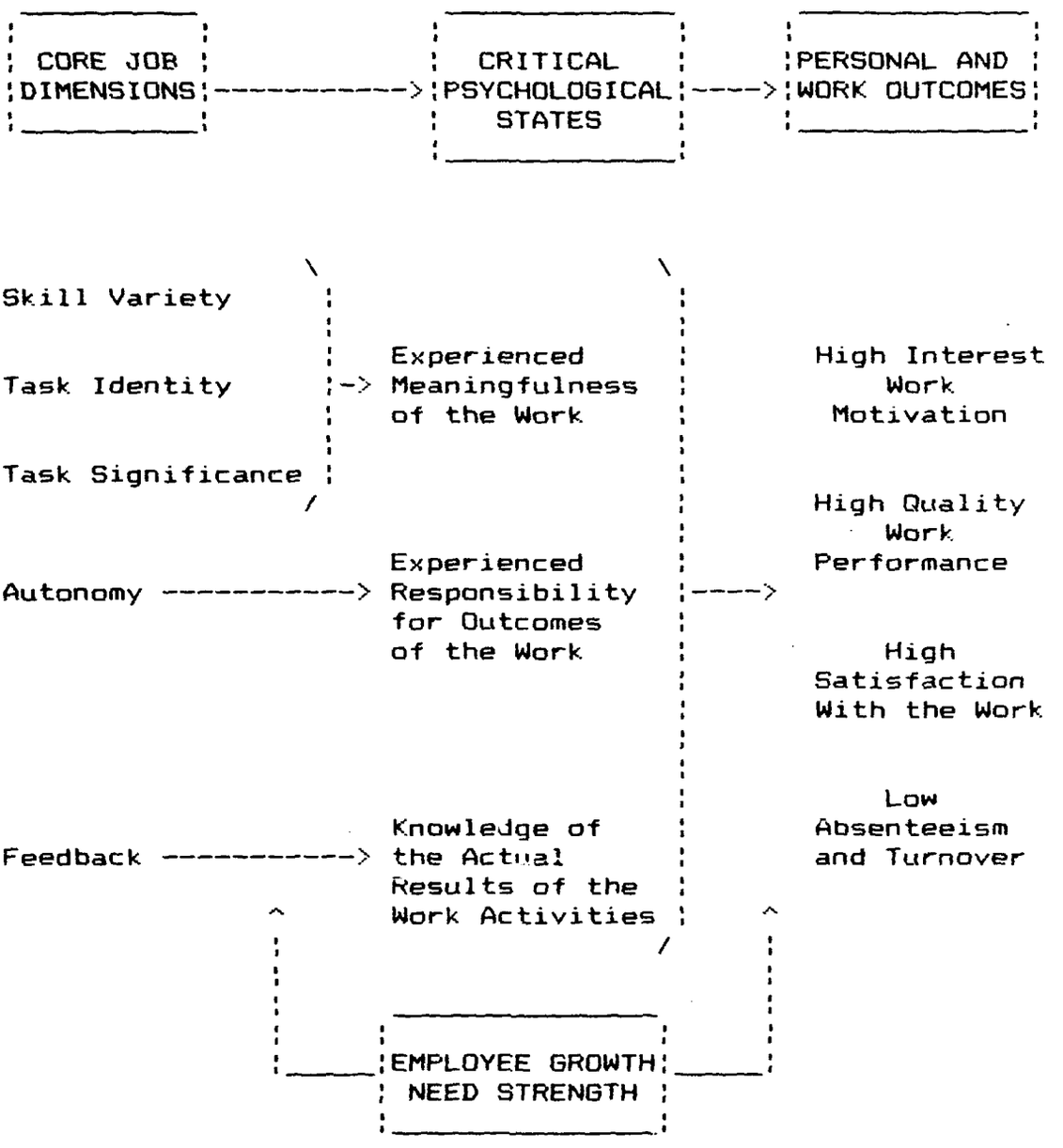


Figure 1. The job Characteristics Model of Work Motivation (Source: Hackman and Oldham, 1975:161).

> (5) Feedback is the degree to which carrying out the work activities required by the job results in the individual obtaining direct and clear information about the effectiveness of his or her performance (Hackman and Oldham, 1976:258).

Three of the five core dimensions (skill variety, task identity and task significance) contribute to the experienced meaningfulness of the work. Autonomy influences experienced responsibility. Feedback influences the knowledge of results. According to the model, the psychological states shape outcomes, including job satisfaction. Finally, the model combines the five core dimensions into a single motivating potential score (MPS). MPS reflects the overall potential of a job to influence an individual's feelings and behaviors (Hackman and Oldham, 1976:256).

According to the model, different people also have different levels of growth need strength. Individuals with a high personal growth need respond with a strong desire to assume responsibility for finding solutions to problems. They also tend to set difficult goals for themselves and take calculated risks. They thrive on concrete feedback and are prone to preoccupation with task accomplishment. They respond more positively to a job high in motivating potential. On the other hand, individuals with low growth needs will not respond as well. They typically prefer low risk levels on tasks and desire shared responsibility (Daft and Steers, 1986:44).

Growth needs moderate relations between the core job dimensions and the personal and work outcomes (Hackman and Oldham, 1976:259). Individuals with low growth needs may become frustrated if jobs provide greater ammounts of variety, autonomy and responsibility. Meanwhile, jobs that provide little time for learning, creativity, discretion, responsibility, and participation become dissatisfying to high growth needs people (Kozlowski and Hults, 1986:196). High growth needs people must sense that their jobs provide: trust, involvement, guidance, talent development, objectivity and fairness, management interest in human relations, and appropriate compensation (Jenkins, 1988:44).

Job redesign theory such as the Job Characteristics Model, argues that redesigning jobs into natural work units or pieces of work that logically fit together will enhance employee satisfaction. This allows employees to feel a sense of ownership of the work and see its significance. For example, a job might be redesigned so that an individual performs a specific project from start to finish. Similarly, skill variety and task identity may be enhanced by combining like tasks together. Changing the autonomy level of the job might entail permitting employees to select their own work, the hours of work, or to participate in decisions affecting the job (Daft and Steers, 1986:172). Flexibility gives ambitious and creative professionals the satisfaction of controlling their environment.

To be successful job redesign must include attitudinal or psychological factors when focusing on skill variety, task identity, task significance, autonomy, and feedback. There is no universal model for performing a job redesign. The design will vary depending on the individuals involved and the task environment. The employees' psychological needs and goals must mesh with the demands and opportunities of the job. This process will need to continue over time as both the employee and the organization change (Hackman and Lawler, 1971:285). The next section of this report explores empirical studies of job redesign.

Empirical Research

The Job Characteristics Model has been widely researched. A meta-analysis by Loher, Noe, Moeller, and Fitzgerald (1985) found support for the model's relationships between core dimensions and job satisfaction. Their review of 28 studies showed strong relations between job characteristics and job satisfaction for employees high in growth need strength. They reported correlations ranging from .32 for task identity to .46 for autonomy.

Caldwell and O'Reilly (1982) conducted a laboratory study of 77 Master of Business Administration students. The students were randomly assigned to role play a satisfied or dissatisfied worker. They also performed a field study of 88 retail representatives holding the same job. Job

satisfaction was found to be strongly related to perceived task characteristics. They reported criterion-correlations with job satisfaction ranging from .27 for task significance to .51 for autonomy in the study of field representatives. The study reported that, despite holding the same job, workers who feel more satisfied with the job describe the job in more positive and socially desirable terms (Caldwell and O'Reilly, 1982:364).

Glick, Jenkins, and Gupta (1986) gathered data from 631 respondents in four organizations. The organizations were two automotive parts manufacturers, a printing company and a large university hospital. They reported a correlation of .59 between variety and challenge satisfaction. They also observed a correlation of .72 between complexity and challenge satisfaction. The authors maintain that it is safe to conclude there is a relationship between job characteristics and attitudinal outcomes. Changing job characteristics may lead to substantive improvements in challenge satisfaction (Glick, Jenkins, and Gupta, 1986:456-457).

Wall, Clegg and Jackson (1978) examined 47 shop employees in a production department of a confectionery factory. This analysis included zero-order correlations and stepwise multiple regression. Using their multiple regression statistics, the study yielded multiple correlations of .64 and .72, respectively, when regressing

general satisfaction on the core dimensions of the Job Characteristics Model. These results supported the Model's usefulness as a general framework for job redesign. The study supported the generalizations of the Model to a homogeneous group of employees (Wall, Cleg, and Jackson, 1978:194-195).

Lawler, Hackman, and Kaufman (1973) performed their research with telephone company operators and service assistants. The job redesign increased the amount of autonomy and variety in the jobs. Using mean difference t-tests, they found no increase in work motivation or satisfaction over time. Instead, the changes had a negative effect on interpersonal relationships. The authors state that a high increase in all four core dimensions is necessary for increased motivation and satisfaction. The changes in the job did not increase all four core dimensions, so the data were consistent with the theory (Lawler, Hackman, and Kaufman, 1973:60).

In 1976, Umstot, Bell, and Mitchell studied 50 employees of a simulated organization. They examined job enrichment and goal setting effects on behavior. The correlation between MPS and productivity was -.16, but the MPS-satisfaction correlation was .71. The data provided support for Hackman and Oldham's model with respect to enrichment's effects on satisfaction but not on productivity (Umstot, Bell, and Mitchell, 1976:387).

Hackman, Pearce, and Wolfe (1978) studied 201 bank employees undergoing technological job changes. The technological changes produced a naturally occurring job redesign. Changes in job characteristics due to the job change affected employee reactions as hypothesized. Those jobs increasing in motivating potential also showed gains in internal motivation and growth satisfaction. The converse was true for employees whose jobs decreased in motivating potential (Hackman, Pearce, and Wolfe, 1978:300).

A study conducted by Griffin (1981) investigated 342 employees of a manufacturing plant in a large southwestern city. There were no significant correlations between task characteristics and productivity measures. On the other hand, all task characteristics were highly correlated with job satisfaction measures within and across observational periods. These correlations ranged from .35 for autonomy to .69 for variety.

Orpen (1979) studied the effects of enrichment on satisfaction and performance. He studied clerks in three divisions of a government agency. The results showed that job enrichment produced significant increases on employee job satisfaction. The satisfaction correlations ranged from .27 for skill variety to .36 for task identity. Enrichment had little impact on performance over the study's six-month experimental period.

Hackman, Oldham, Janson, and Purdy (1975) implemented a job redesign on a group of 98 keypunch operators. The purpose was to examine morale and productivity. The experimental group increased 39.6% in productivity compared to the control group's 8.1% productivity increase. The experimental group also showed an overall improvement of 16.5% in their job satisfaction score compared to the control group's .5% increase in satisfaction. The experimental group's error rates dropped from 11.1% to 5.5%. The authors maintain that the results represent dramatic improvements in work attitudes and a significant dollar savings accruing to the company as a result of the job enrichment (Hackman, Oldham, Janson, and Purdy, 1975:69).

Since this research effort is taking place within an Air Force organization, a review of Air Force job redesign research may be helpful. There have been very few documented job redesign efforts within the Air Force. Most studies involved surveys to determine if job redesign might improve job satisfaction. What follows is a sample of these studies.

A job enrichment study by Smiley (1982) examined 485 civilian engineers within Base Civil-Engineering organizations. The sample scored highly on all of the core dimension variables. The lowest scores were in the areas of task identity, task significance, and autonomy. Even with the relatively high scores, there was still a need for higher

job challenge. This led the author to conclude that job redesign focusing primarily on job enrichment factors might increase job satisfaction.

Flynn (1983) examined results from 600 airmen in three aircraft maintenance career fields. The survey instrument was the short form Job Diagnostic Survey of Hackman and Oldham. The study found a lack of autonomy in the jobs and low satisfaction with supervision relative to national norms. The results of the study supported the Job Characteristics Model's relationships between core job dimensions and work outcomes.

Another study of the Job Characteristics Model by Price (1985) examined results from 600 airmen in three missile maintenance career fields. Price used the Hackman and Oldham instrument to examine relationships between job redesign and overall job satisfaction. The study found low skill variety and autonomy in one of the career fields.

Samples of 218 Strategic Air Command Missile Operations officers and 475 Missile Launch officers were studied by Lahoff (1986). His results indicated that the officers were less satisfied with their work than the average non-managerial worker.

Peters and Duke (1982) surveyed 414 senior Non-Commissioned Officers in the Civil Engineering career field. The researchers observed low scores on skill variety, task identity and task significance when compared against

normative data. The results suggest a need for more attention by managers to the psychological shortcomings of these jobs.

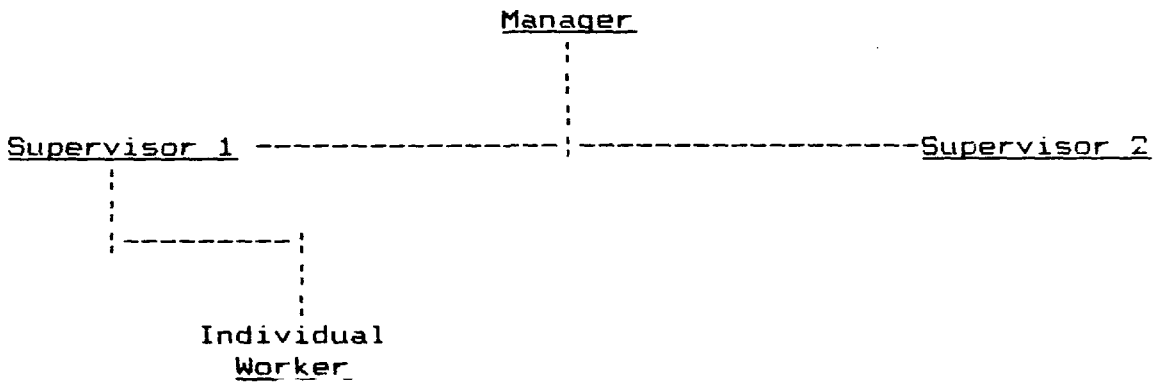
Matrix Organizations

There is a potential confound for this job redesign study. The group studied is part of a matrixed organization. Matrix organizations may create their own problems because of their unusual structure. Many problems occur because of the dual lines of authority in the organization (see Figure 2). The object of these dual lines of authority is to increase the capacity for information flow between personnel and to force personnel to see the "big picture" (Daft and Steers, 1986:381) However, this organization design violates the traditional management principle of unity of command. The cloudy chains of authority complicate decisions concerning delegation by making responsibilities ambiguous (Joyce, 1986:536). As a result, negative effects on work attitudes, job satisfaction, and involvement sometimes occur (Daft and Steers, 1986:383).

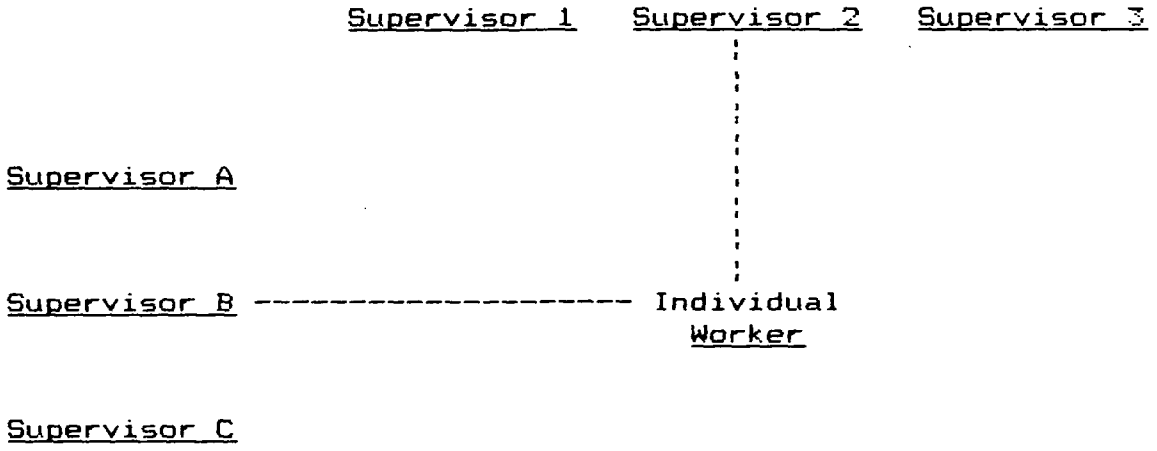
Conclusion

This literature review sought to examine empirical precedents dealing with the Job Characteristics Model's relationships between core job dimensions, job satisfaction, and productivity. Job enrichment consistently improved morale and job satisfaction. Productivity and cost savings

may also result. With a better motivated, more committed work force we may expect improvements in organizational effectiveness (Umstot, 1980:81).



NON-MATRIXED ORGANIZATION STRUCTURE



MATRIX ORGANIZATION STRUCTURE

Figure 2. Matrix vs Non-Matrixed Organizational Comparisons.

III. Method

Overview

This chapter describes the methodology used to accomplish this research. This chapter includes a section describing the two sample populations, a look at the project setting, and a brief explanation of the diagnostic phase of the study. The next section looks at the job redesign process. More specifically, there is an examination of the in-house job redesign team and the intervention. Finally, the post-design survey questionnaire and procedures are examined.

Samples

A group of company grade officers in a southeastern U.S. Air Force Base Program Control Office had their jobs enriched. Initially, the enriched group had 29 officers. Their ranks ranged from Second Lieutenant to Captain. Their average age was 27 years, and they had an average of two years in the Air Force. They were all college graduates with many already holding or working towards masters' degrees. The enriched group were employed by a matrixed organization consisting of Acquisiton Managers and Cost Analysts (Connors, 1988:23).

For comparison purposes, a control group was drawn from a different organization with similar duties located on a southeastern U.S. Air Force Base. Initially, the

control group had 68 officers. This group was similar to the enriched group in demographics but was not a matrixed organization (Connors, 1988:24).

Project Setting

The enriched group was part of an organization employing 327 people. The organization provided accounting, finance, and budget services to program offices. The program offices were responsible for the development and acquisition of new weapon systems or the modification of existing weapons systems. Each group of smaller weapons systems or each major weapon system was considered a separate program. As a result, personnel from the enriched group were matrixed into the programs to handle all the accounting, finance, and budgeting functions of the acquisition process (Connors, 1988).

The Diagnostic Phase

The diagnostic phase of this study is discussed in Connors (1988). Initially, the organization commander learned through discussions with employees that morale in the organization was low. The commander enlisted the assistance of an external consultant to resolve the problem. A diagnostic analysis was conducted through the use of on-site interviews and a job diagnostic survey. Finally, an in-house job redesign team was formed.

The job redesign team was an all male, volunteer group. They were all lieutenants with less than four years in the Air Force and they were all Acquisition Project Officers.

The Job Redesign Process

The redesign team first met on 5 January 1989. The team's first step was to review the issues raised during the diagnostic phase of the study. These issues included concentrating the job redesign effort in the areas of variety, task significance, autonomy, and feedback from the job (Connors, 1988:38-48). The team met a total of six times, for two to three hours each time, between 5 January and 26 January 1989.

Variety. A job rotation program was created to allow the officers a chance to obtain experience in other Program Control offices.

Task Significance. Program Control created a local orientation program for all company grade officers. This program included overviews of Air Force Systems Command, Armament Division, AC (Comptroller organization), SPOs (System Program Offices), and Program Control offices. The orientation included brief explanations of how the officers' Air Force Specialty Code (AFSC) fits into the work. The orientation also included descriptions of the career paths available to future program managers. The officers also received a review of the formal training available and career paths to senior positions. Finally, to complete

the program, a small orientation booklet is provided referencing this information.

Autonomy. The Program Control officers were given more flexibility and freedom to accomplish work. Most of the work performed by the officers involved chart and graph making, data collection for reports, and other miscellaneous tasks. Most of this work was a formatted procedure. This had caused uninteresting and repetitive work.

Feedback. Attempts were made to provide opportunities for the officers to see more of the overall operation. The Program Control officers were permitted to visit facilities where weapon systems were made, tested, or used. The junior officers were permitted to accompany a senior officer to higher level meetings to get the "big picture."

The organization commander received the job redesign on 27 January 1989. The intervention included the job rotation program, the orientation program, more flexibility in decision making, and the improved feedback opportunities.

Measures

The survey contained an introductory cover letter, general information, and instructions section. It duplicated the diagnostic survey administered by Connors (1988). It contained 60 items (see appendix A) beginning with background information. Background information was followed by Job Satisfaction, Job Information, Job Description, Job Challenge, Training and Education, and the

Matrix Organization. Finally there was a general comments area at the end of the questionnaire.

Many of the survey items are ad-hoc items developed specifically as a result of the enriched groups initial responses during the diagnostic phase of the study. The questionnaire was pre-tested on twenty-five students and faculty of the School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson AFB, Ohio. This pre-test was completed during Febrauary 1988 (Connors, 1988:34). Reliability data for the multiple item measures are listed in Table 1. A detailed description of each section follows.

Background information. This section was concerned with general information about each respondent. Items asked age, rank, AFSC, education level, primary area of study, time in present position, and time in present AFSC. For example age gave alternatives beginning with less than 20 years (1), going up to more than 60 years (7). Rank's alternatives began with 2Lt (1) increasing to Col (6), and other (7). AFSC had three choices 27XX (1), 67XX (2), and other (3). Education level started with Bachelor's degree (1) through Doctoral degree (6), concluding with other (7). The item asking about the respondents primary field of study had alternatives such as: Engineering (1), Business (2), Technical (other than engineering) (3), Arts (4), and other (5). The next item asked how long the respondent had been in

Table 1

Reliability Coefficients (Alpha) for Multi-Item Measures

Variable	r
Task Variety	.86
Task Identity	.81
Task Significance	.92
Autonomy	.76
Feedback from Job	.85
Feedback from Agent	.89
Challenge	.85
Training	.84

his or her present position. Alternatives ranged from less than 1 month (1) to more than 36 months (7). Finally, this section concluded with the item asking the respondents amount of time in his or her present AFSC. Alternatives ranged from less than 1 month (1) to more than 36 months (7) (Connors, 1988).

Job satisfaction. This section of the questionnaire contained 21 items covering topics like "being able to keep busy all the time" to "enjoying the work itself." These items came from the short-form Minnesota Satisfaction Questionnaire (Weiss, Dawis, England and Lofquist, 1967). Possible response alternatives ranged from very dissatisfied (1) to very satisfied (5). The Job Satisfaction items had a median reliability coefficient of .86 for intrinsic items and a .80 for extrinsic items (Weiss, Dawis, England, and Lofquist, 1967).

Job characteristics. The Job Diagnostic Survey (JDS) of Hackman and Oldham (1975) was used to measure the five core dimensions of the Job Characteristics Model (Hackman and Oldham, 1976). These core dimensions were task variety, task identity, task significance, autonomy, and feedback. A scale for each dimension was obtained by adding scores from three survey items.

This instrument operationalized the core dimension, feedback, in terms of two sub-dimensions. These sub-dimensions were feedback from the job and feedback from

agents. Hackman and Oldham (1975) defined feedback from the job as the degree to which carying out the work activities resulted in the employee obtaining direct and clear information about the effectiveness of his or her work. Feedback from agents was defined as the degree to which the employee received clear information about his or her performance from supervisors or from co-workers.

Aldag, Barr, and Brief (1981) stated that the internal consistency of the Job Diagnostic Survey was examined in ten studies. A mean internal consistency reliability of .68 was reported across these studies for the various core-dimension scales.

Challenge. In this section the respondent was provided with three items dealing with how challenging he or she considered the work (Connors, 1988). Responses ranged on a seven-point scale from strongly disagree (1) to strongly agree (7). For instance, sample items stated, "the job itself is challenging and interesting" and "the job itself requires very little use of my talents or skills."

Training and education. The respondent was provided with three items dealing with the amount of training he or she received for the job (Connors, 1988). Responses ranged on a seven-point scale from strongly disagree (1) to strongly agree (7). Items covered such topics as, "a technical background is necessary to do my job" and "I have received the proper ammount of training to do my job."

The matrix organization. This section guaged employee perceptions about the matrix organization for which they worked. Four total items focused on such topics as, "the Program Control Division has total control over the placement of its personnel" and "I do not know much about how a matrix organization operates." Once again a seven-point scale was used. Responses were scaled from strongly disagree (1) to strongly agree (7).

The last item asked the respondent if they participated in the diagnostic phase i.e., the AFIT survey during April 1988.

Procedures

The survey was distributed through the mail during the last week of May 1989. Address labels were made using the list of personnel assigned to the two sample populations. Each individual was mailed the survey, an answer sheet and a pre-addressed envelope in which to return the answer sheet.

Surveys were mailed to a total of 99 personnel in the two sample populations. A total of 56 surveys were returned for a response rate of 57%. The enriched group returned 17 out of 29 surveys for a response rate of 59%. The control group returned a total of 39 out of 68 surveys for a response rate of 57%. One survey was returned, unopened, because the individual separated from the Air Force.

IV. Results

Overview

This chapter presents the results of the statistical analyses of the survey data. First, there is a matrix of intercorrelations for all the multiple-item measures. Pre-enrichment and post-enrichment survey data were compared for both the enriched group and comparison group. T-tests for independent samples were used to compare the means for each of the criterion variables. Then, means for both the enriched group and comparison group were tested relative to each other. Next, scores for respondents from the members of the enriched group who had participated in the entire study were compared to the set of baseline scores for the enriched group. A subgroup analysis was also performed comparing members of the enriched group based on the degree of their exposure to the enrichment intervention. A summary table of group means is provided exhibiting results for the different enrichment groups relative to normative data extracted from Oldham, Hackman, and Stepina (1978). Finally, a sample of the open-ended comments is followed by an overall summary of the survey results.

Variable Intercorrelations

Table 2 provides a matrix of intercorrelations for the multiple-item measures used in this report. The sample size

Table 2

Intercorrelation Matrix

Variable	1	2	3	4	5	6	7	8
1. Task Variety	.	.	.	.	.	.	.	.
2. Task Identity	.31	.	.	.	.	.	.	.
3. Task Significance	.68	.59	.	.	.	.	.	.
4. Autonomy	.58	.47	.69	.	.	.	.	.
5. Feedback from Job	.57	.51	.60	.60	.	.	.	.
6. Feedback from Agent	.27	.19	.34	.48	.67	.	.	.
7. Challenge	.83	.44	.73	.54	.30	.59	.	.
8. Training	.60	-.03	.33	.20	-.12	.06	.50	.

Note. Sample size: $53 \leq n \leq 56$.
A correlation of .26 was significant at $p < .05$.

varied from 53 to 56. A correlation of .26 was significant at $p < .05$.

The table shows that the core dimensions were significantly intercorrelated. Challenge was highly correlated with task variety and significance, while training was fairly independent of other criterion measures.

Enriched Group

T-tests were performed to determine if the enriched group manifested score changes between the period of the baseline measurement (Connors, 1988) and the post-enrichment survey. The scales used as dependent measures consisted of the Job Diagnostic Survey core dimensions of task variety, task identity, task significance, autonomy, feedback from job, and feedback from agent, as well as ad-hoc measures of challenge and training developed by Connors (1988).

Table 3 summarizes these analyses. Although there were no significant differences, scores on the core dimensions of task variety and task identity tended to decrease, rather than increase, in magnitude. Since there were no significant differences, this is tantamount to concluding that there was no change at all. The score instability (i.e., the decreases) were probably due to the small sample sizes involved and attendant measurement instability that small samples are inclined to produce.

Table 3

Results of T-Tests Evaluating Score Changes Over Time for the Enriched Group.

	Baseline		Posttest		
	M	SD	M	SD	t
Task Variety	4.0	2.2	3.0	1.9	-1.39
Task Identity	4.4	1.8	4.0	1.5	- .69
Task Significance	4.1	1.9	4.1	2.1	.00
Autonomy	4.3	2.1	4.5	1.5	.31
Feedback from Job	3.7	1.5	3.9	1.2	.42
Feedback from Agent	4.1	1.3	4.5	1.0	.99
Challenge	4.1	2.1	3.3	2.0	-1.12
Training	2.8	.9	3.1	1.6	.41

Note. Baseline sample n = 16; posttest sample n = 17.

Comparison Group

T-tests were performed on data from the comparison group to isolate baseline-posttest changes within the group. These results are summarized in Table 4. Once again, there were no significant changes on the core dimensions and ad-hoc measures. The means were more stable over time for the comparison group than they were for the enriched group, probably because of the larger comparison group sample size.

Enriched Group vs Comparison Group

Using the same analytical procedure employed in earlier tests, posttest scores for the enriched group were compared to those for the comparison group. These results are summarized in Table 5. In this analysis, mean task variety ($p < .005$), challenge ($p < .01$), and training ($p < .001$) were rated significantly lower by the enriched group than they were by the comparison group.

Subgroup Analysis

Subgroup analysis involved comparing a full-exposure enriched group to the baseline enriched scores. The full-exposure enriched group was determined by an item in the survey questionnaire. This item asked the respondent if they participated in the AFIT survey during April 1988 (Connors, 1988). Those respondents who answered yes, from the enriched group, were sorted into the full-exposure enriched group. Those respondents who answered no, from the enriched group,

Table 4

Results of T-Tests Evaluating Score Changes Over Time for the Comparison Group.

	Baseline		Posttest		
	M	SD	M	SD	t
Task Variety	4.7	1.6	4.5	1.4	-.57
Task Identity	4.3	1.7	4.1	1.5	-.53
Task Significance	4.6	1.8	4.6	1.5	.00
Autonomy	4.8	1.3	4.6	1.2	-.69
Feedback from Job	4.2	1.4	3.9	1.3	-.95
Feedback from Agent	3.7	1.6	4.0	1.6	.80
Challenge	4.7	1.7	4.5	1.8	-.49
Training	4.8	1.3	5.1	1.8	.83

Note. Baseline sample n = 35; Posttest sample n = 39.

Table 5

Results of T-Tests Comparing Posttest Scores from the Enriched and Comparison Groups.

	Enriched Group		Comparison Group		
	M	SD	M	SD	t
Task Variety	3.0	1.9	4.5	1.4	-3.22 **
Task Identity	4.0	1.5	4.1	1.5	- .23
Task Significance	4.1	2.1	4.6	1.5	-1.58
Autonomy	4.5	1.5	4.6	1.2	- .24
Feedback from Job	3.9	1.2	3.9	1.3	.00
Feedback from Agent	4.5	1.0	4.0	1.6	1.42
Challenge	3.3	2.0	4.5	1.8	-2.13 *
Training	3.1	1.6	5.1	1.8	-4.14 ***

Note. Enriched group n = 17; comparison group n = 39.
* P < .01
** P < .005
*** P < .001

were sorted into a partial-exposure enriched group. The full-exposure enriched group and baseline enriched scores are summarized in Table 6. Modest gains for the full-exposure subgroup were posted on task significance, autonomy, feedback from job, feedback from agent, and training. The score improvements were not statistically significant due primarily to the small sample size. However, these results are encouraging since this is the group that had the greatest benefit of exposure to the enrichment intervention.

Subgroup analyses were also performed to compare respondents who participated in all phases of the research (i.e., full-exposure group) to those respondents who were new to the study (i.e., partial-exposure group). Table 7 summarizes these analyses. Enriched-group members with partial exposure to the intervention reported significantly lower feedback from the job ($p < .05$) than those employees with full exposure to the intervention. Furthermore, all differences were in the predicted direction. Those employees having full exposure to the intervention had consistently higher scores than new employees who had partial exposure to the intervention. Some of the differences between groups were quite substantial, even though they were not statistically significant.

Summary Table of Means

Finally, Table 8 shows the means for the baseline, partial-exposure enriched subgroup, full-exposure enriched,

Table 6

Results of T-Tests Comparing Full-Exposure Enriched Group to Baseline Group.

	Baseline		Full-Exposure Subgroup		
	M	SD	M	SD	t
Task Variety	4.0	2.2	3.3	2.3	-.68
Task Identity	4.4	1.8	4.3	1.3	-.15
Task Significance	4.1	1.9	4.7	2.4	.59
Autonomy	4.3	2.1	4.8	1.6	.62
Feedback from Job	3.7	1.5	4.6	1.4	1.39
Feedback from Agent	4.1	1.3	4.7	1.3	1.02
Challenge	4.1	2.1	3.4	2.2	-.71
Training	2.8	.9	3.5	1.8	.98

Note. Baseline group n = 16; enriched group n = 7.

Table 7

Results of T-Tests Comparing Employees in the Enriched Group on the Basis of Their Exposure to the Intervention.

	Full-Exposure		Partial-Exposure		
	M	SD	M	SD	t
Task Variety	3.3	2.3	2.7	1.6	.60
Task Identity	4.3	1.3	3.8	1.7	.69
Task Significance	4.7	2.4	3.7	1.8	.93
Autonomy	4.8	1.6	4.3	1.4	.67
Feedback from Job	4.6	1.4	3.5	1.0	1.78*
Feedback from Agents	4.7	1.1	4.4	.9	.59
Challenge	3.4	2.2	3.3	2.0	.10
Training	3.5	1.8	2.8	1.6	.83

Note. Full-exposure group n = 7; incomplete-exposure group n = 10.

* P < .05

Table 8

Summary Table of Means for the Baseline, Partial-Exposure, Full-Exposure, and Normative Groups.

	Enriched Group							
	Base-line		Partial-Exposure		Full-Exposure		Normative Group[a]	
	M	SD	M	SD	M	SD	M	SD
Task Variety	4.0	2.2	2.7	1.6	3.3	2.3	5.4	1.0
Task Identity	4.4	1.8	3.8	1.7	4.3	1.3	5.1	1.2
Task Significance	4.1	1.9	3.7	1.8	4.7	2.4	5.6	1.0
Autonomy	4.3	2.1	4.3	1.4	4.8	1.6	5.4	1.0
Feedback from Job	3.7	1.5	3.5	1.0	4.6	1.4	5.1	1.1
Feedback from Agents	4.1	1.3	4.4	.9	4.7	1.1	4.2	1.4
Challenge	4.1	2.1	3.3	2.0	3.4	2.2	N/A	N/A
Training	2.8	.9	2.8	1.6	3.5	1.8	N/A	N/A

Note. Baseline group n = 16; Partial-exposure group n = 10, full-exposure group n = 7, normative group n = 72.

N/A Data not available.

a Normative Group Statistics extracted from tables provided by Oldham, Hackman, and Stepina (1978).

and normative groups. Relative to the normative statistics, the enriched groups are still below the norms for technical/managerial personnel. On the other hand, the full exposure group has shown progress relative to the baseline. Bear in mind that the improved scores for this group have occurred within a fairly short time frame.

Open-ended Responses

Finally, the questionnaire also afforded the respondent the opportunity to contribute open-ended comments. Samples of respondent comments follow.

> "I feel the biggest problem is not matching jobs with educational background. The Air Force asks for engineers and technical majors, then places us where our major is of no use."
>
> "I think you will find more dissatisfaction with engineers coming into Program Control as a first assignment. They would be happier if upper management would guarantee a job in Program Management after a certain time in Program Control."
>
> "Training is the most important aspect missing from my job."
>
> "The problem with Program Control is putting an engineer in a job that has nothing to do with engineering."
>
> "I was an electrical engineer. I realize that I have only been here less than a year, but I feel almost as incompetent and unimportant as I did the first day."
>
> "No officer should be required to stay in Program Control longer than 1-2 years. There is no challenge other than the sheer volume of work."

Summary

The data were analyzed to evaluate the job enrichment intervention. The first group of analyses were looking for a

significant increase in the posttest results relative to the baseline scores. This would have suggested that a positive increase in job characteristics had occurred. However, significant improvements did not occur.

The next group of analyses were completed on the comparison group. These analyses also suggested no significant change had taken place between the baseline and posttest scores.

Since the analysis focusing on the enriched group provided results contrary to those expected, an additional subgroup analysis was performed. Comparisons of the respondents with full exposure to the intervention and those with partial exposure yielded a significant difference on the measure of feedback from the job. Scores were significantly higher for the full exposure subgroup. Furthermore, the full exposure subgroup produced higher scores on all of the measures than did the partial exposure subgroup. This result suggests that some beneficial changes have taken place as a result of the enrichment intervention even though the score differences were not statistically significant. The lack of significance was probably due to the small sample sizes involved. A larger sample size (e.g., $n > 30$) would be more apt to yield statistically significant results with score differentials like those we observed.

V. Discussion

Overview

This research attempted to determine if a job redesign intervention had effectively improved the job characteristics of a group of company grade officers in an Air Force Program Control Office. Pre-enrichment and post-enrichment survey questionnaires provided the data used in making this determination. Data analysis results will now be used to discuss the effects of the job redesign.

Analysis of Findings

The posttest scores for the entire enriched group showed minor improvements on the dimensions of autonomy, feedback from the job, feedback from agents, and training. The dimension of task significance exhibited no change while task variety, task identity, and challenge scores were below the baseline scores. The nonsignificant results for this analysis tended to support a conclusion that the job redesign had not been successful in promoting changes in the way the job was experienced. Further investigation involving partitioning the enriched group into the full-exposure and partial-exposure subgroups suggested that a change in job perceptions occurred among those individuals with greatest exposure to the intervention.

The results of this research suggested that the job redesign produced some improvement on the job

characteristics scores for the full-exposure enriched group. Comparing the full-exposure group to the baseline scores produced no statistically significant change, but there was evidence of positive change in the desired direction. These changes represented modest gains on all measures for the full-exposure group relative to baseline scores.

During the diagnostic phase of this study, Connors (1988) found that the baseline scores for task variety, task significance, autonomy, and feedback from the job were significantly lower than normative data from similar occupational groups (Oldham, Hackman, and Stepina, 1978). The current phase of this research found that the scores for task significance, autonomy, feedback from the job, and feedback from agents had increased from the baseline scores for the full-exposure group. This result suggests that, given an opportunity to fully experience it, the job redesign intervention may improve the group's perception of their job characteristics. However, these changes were not statistically significant. Furthermore, scores were still lower than scores obtained from the normative population (Oldham, Hackman, and Stepina, 1978).

The nonsignificant changes may have occurred as a result of the short time frame, 4 months, between institution of the intervention and the post-enrichment survey. Hackman, Pearce, and Wolfe (1978) and Griffin (1981) stated that a relatively long time interval (i.e.,

one year) is necessary for task characteristics changes to appear in the form of altered perceptions. Griffin (1981) maintained that longer time lags reflect the strongest evidence for causality, suggesting that reactions to perceived task characteristics may need an extended period of time to manifest themselves. He argued that research should assess the extent to which the measureable relationships among task and individual variables are consistent over time. Griffin (1987) maintained that the role of time is forgotten in the task attributes literature.

Another explanation for the nonsignificant changes was the small sample size. Small sample sizes produce low statistical power and instability. Larger groups might have produced significant results.

A major area of employee concern found by Connors (1988) was the dimension of job challenge. Job challenge was measured by Connors (1988) with an ad-hoc measure. In the current study job challenge scores decreased for the full-exposure group relative to baseline data collected by Connors (1988). A preponderance of open-ended comments from both phases of this study echoed respondents' beliefs that their engineering background made them overqualified for their current duties. Because of the highly specialized aspects of engineering careers, the respondents felt that their technical training was being wasted. Kozlowski and Hults (1986) stated that many factors influence engineer job

performance, but one of the most consistently cited factors is task complexity or job challenge.

The current data also suggested that both the enriched and comparison groups were significantly lower than the normative group on all criterion variables (Oldham, Hackman, and Stepina, 1978). The fact that the comparison group was also lower suggests that perhaps a job redesign at base level, such as this one, fails to completely address the scope of the problem. The intervention may improve the local situation without completely addressing the wider issues of engineering backgrounds and their propriety for this type of job. This research suggests that problems with Program Control jobs are not limited to the enriched group, but also exist in similar Air Force organizations. Therefore, the issue of engineering backgrounds in these jobs must be addressed at a higher management level.

Limitations

This research had a number of limitations. An important limitation of this study originated from the normal duty rotation of military personnel. As mentioned before in this report, there would be continuity problems from one phase of this study to the next as personnel were rotated into and out of jobs in the enriched group. There was a 59% turnover in personnel from the diagnostic phase of this study to the present phase. An attempt was made to

assess the impact of this problem by examining results for the full-exposure and partial-exposure enriched groups.

Another limitation of this research was the inability of the researcher to link an individual's responses over time. There was no means of directly comparing responses of a specific individual during the diagnostic phase of the study to responses made for the posttest survey.

Another limitation of this study was the small sample size involved. Statistics based on small groups lack statistical power. This research focused on two small organizations leading to the very small subgroups.

A fourth limitation of this research was the fact that the researcher had little control over the intervention. Most of the researcher's contact with the job redesign team was by phone. The in-house redesign team was chosen to build the intervention for two reasons. The first reason was their job experience while the consultant was inexperienced in the job. The second reason was that there would be a lack of face-to-face contact between both the team and the consultant because of other duties. These reasons coupled with the fact that this was an operational squadron with certain Air Force restrictions on the changes which could be made, meant that the researcher had little control over the intervention.

Recommendations

While our findings are very tentative, this study has produced some evidence to suggest that the intervention should be continued. The initial redesign team produced a workable job redesign intervention. The redesign team should meet periodically and continue to evaluate their efforts. One or two new personnel on the redesign team might provide a different perspective on how to improve the job characteristics. This does not mean that the whole team should be changed. On the contrary, most of the redesign team should remain the same in an attempt to build continuity. The redesign team should continue to search for newer or better ways to improve the job situation. They should concentrate improvement efforts on the areas of job challenge and task variety. These two dimensions displayed the greatest score decreases between the baseline scores and the posttest scores. The team should periodically meet with the rest of the organization and management to brief the progress of the intervention and to receive input from other personnel.

Management needs to show continued interest in the redesign intervention and to make the intervention's positive results known to everyone in the organization. Finally, management and the job redesign team should try to institutionalize the program.

Appendix: Survey Questionnaire

GENERAL INFORMATION

The purpose of this questionnaire is to obtain information about you, your job , and your organization. Specifically, this information will help determine what job satisfaction issues, if any, are affecting your organization.

Information you provide will be strictly confidential. Your supervisors and commanders will not see your individual answers. Feedback on the study's results will be in terms of group averages describing the typical response. Also, when the results become published, no one will be able to identify specific individuals or work groups.

Thank you for your cooperation in this study. If you have any questions please contact me at the following address:

Wilson E. Sagendorph Jr., Capt, USAF
AFIT/LSG
Wright-Patterson AFB, OH 45433
Telephone: Autovon 785-4437

INSTRUCTIONS

This questionnaire contains 60 individual questions. Answer all items by filling in the appropriate spaces on the machine-scored response sheets. If you do not find a response that fits your situation exactly, use the one that is the closest to how you feel. Also, asection for open-ended comments is at the end of the questionnaire. I encourage you to use this space.

Please use a soft lead (No. 2) pencil, and observe the following:

1. Make heavy black marks filling the answer space.
2. Cleanly erase any answers you change.
3. Do not make stray markings on the answer sheet.
4. Do not staple, fold or tear the answer sheet.

PLEASE NOTE: DO NOT put your name on the answer sheet.

Job Diagnostic Survey to Determine Specific
Job Satisfaction Issues

BACKGROUND

This section of the survey contains items dealing with personal characteristics. The information will obtain a picture of the typical employee's background.

1. What is your age?
   1. Less than 20 years
   2. 20 to 25 years
   3. 26 to 30 years
   4. 31 to 40 years
   5. 41 to 50 years
   6. 51 to 60 years
   7. More than 60 years

2. What is your rank?
   1. 2Lt
   2. 1Lt
   3. Capt
   4. Major
   5. Lt Col
   6. Col
   7. Other _____

3. Your AFSC is:
   1. 27XX
   2. 67XX
   3. Other _____

4. The highest education level completed is:
   1. Bachelor's degree
   2. Some graduate work
   3. Master's degree
   4. Doctoral degree
   5. Other _____

5. What was your primary area of study in school?
   1. Engineering
   2. Business
   3. Technical (other than engineering)
   4. Arts
   5. Other _____

6. How many months have you been in your present position?
   1. Less than 1 month
   2. More than 1 month but less than 6 months
   3. More than 6 months but less than 12 months
   4. More than 12 months but less than 18 months
   5. More than 18 months but less than 24 months
   6. More than 24 months but less than 36 months
   7. More than 36 months

7. How many months have you been in your present AFSC?
   1. Less than 1 month
   2. More than 1 month but less than 6 months
   3. More than 6 months but less than 12 months
   4. More than 12 months but less than 18 months
   5. More than 18 months but less than 24 months
   6. More than 24 months but less than 36 months
   7. More than 36 months

JOB SATISFACTION

Using the scale below indicate how satisfied or dissatisfied you are with each of the following aspects of your job.

1 = Very dissatisfied
2 = Dissatisfied
3 = Neither satisfied nor dissatisfied
4 = Satisfied
5 = Very Satisfied

8. Being able to keep busy all the time

9. The chance to work alone on the job

10. The chance to do different things from time to time

11. The chance to be an important member of the community

12. The way my boss handles his/her people

13. The competence of my supervisor in making decisions

1 = Very dissatisfied
2 = Dissatisfied
3 = Neither satisfied nor dissatisfied
4 = Satisfied
5 = Very Satisfied

14. Being able to do things that don't go against my conscience

15. The way my job provides for steady employment

16. The chance to do things for other people

17. The chance to tell people what to do

18. The chance to do something which uses my abilities

19. The way policies are put into practice

20. My pay and the ammount of work I do

21. The chance for advancement on the job

22. The freedom to use my own judgement

23. The chance to try my own method of doing the job

24. The working conditions

25. The way my co-workers get along with one another

26. The praise I get for doing a good job

27. The feeling of accomplishment I get for doing a good job

28. Enjoying the work itself

JOB INFORMATION

In this section you are asked to describe your job as objectively as possible. For each item choose the number which most accurately describes your job.

29. To what extent does your job require you to work closely with other people (either clients or people in related jobs in your own organization)?

1	2	3	4	5	6	7
Very little; dealing with other people is not at all necessary in doing the job.		Moderately; some dealing with others is necessary.				Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

30. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

1	2	3	4	5	6	7
Very little; the job gives me almost no personal say about how and when to do the work.		Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.				Very much; the job gives me almost complete responsibility for deciding how and when the work is done.

31. To what extent does your job involve doing a whole or indentifiable piece of work? That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small part of the overall piece of work, finished by other people or by automatic machines?

1	2	3	4	5	6	7
My job is only a small part of the overall piece of work; the results of my activities cannot be seen in the final product or service.		My job is a moderate size chunk of the overall piece of work; my own contribution is seen in the final outcome.				My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service.

32. How much variety is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1	2	3	4	5	6	7
Very little; the job requires me to do the same routine things over and over again.			Moderate variety.			Very much; the job requires me to do many different things, using a number of different skills and talents.

33. In general, how significant or important is your job? That is, are the results of your own work likely to significantly affect the lives or well-being of others?

1	2	3	4	5	6	7
Not very significant; the outcomes of my work are not likely to have important effects on others.			Moderately significant.			Highly significant; the outcomes of my work can affect other people in very important ways.

34. To what extent do managers or co-workers let you know how well you are doing on the job (other than OERs)?

1	2	3	4	5	6	7
Very little; people almost never let me know how well I am doing.			Moderately; sometimes doing the job provides feedback to me; sometimes it does not.			Very much; the job is set up so that I get almost constant feedback throughout the job process.

35. To what extent does doing the job itself provide you with information about your performance? That is, does the actual work itself provide clues about how well you are doing. This is aside from any feedback co-workers or supervisors may provide?

1	2	3	4	5	6	7
Very little; the job itself is set up so I could work forever without finding out how well I am doing.			Moderately; sometimes doing the job provides feedback to me; sometimes it does not.			Very much; the job is set up so that I get almost constant feedback as I work about how well I am doing.

JOB DESCRIPTION

Listed below are a number of statements which could describe a job. You are to indicate whether each statement is an accurate or inaccurate description of your job. Once again, please try to be as objective as you can in deciding how accurately each statement describes your job.

1 = Very Inaccurate
2 = Inaccurate
3 = Slightly Inaccurate
4 = Uncertain
5 = Slightly Accurate
6 = Accurate
7 = Very Accurate

36. The job requires me to use a number of complex or high-level skills.

37. The job requires a lot of cooperative work with other people.

38. The job is arranged so that I do not have a chance to do an entire piece of work from beginning to end.

39. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

40. This job is quite simple and repetitive.

41. The job can be done adequately by a person working alone, without talking or checking with other people.

42. The supervisors and co-workers on this job almost never give me any feedback about how well I am doing in my work.

43. This job is one where a lot of people can be affected by how well the work gets done.

44. The job denies me any chance to use my personal initiative or judgement in carrying out the work.

45. Supervisors often let me know how well they think I am performing on the job.

46. The job provides me the chance to completely finish the pieces of work I begin.

47. The job itself provides few clues about whether I am performing well.

1 = Very Inaccurate
2 = Inaccurate
3 = Slightly Inaccurate
4 = Uncertain
5 = Slightly Accurate
6 = Accurate
7 = Very Accurate

48. The job gives me considerable opportunity for independence and freedom in how I do the work.

49. The job itself is not very significant or important in the broader scheme of things.

CHALLENGE

Use the following scale to describe how challenging you consider your work.

1 = Strongly Disagree
2 = Disagree
3 = Slightly Disagree
4 = Neither Agree nor Disagree
5 = Slightly Agree
6 = Agree
7 = Strongly Agree

50. The job itself is challenging and interesting.

51. Program management work is more interesting and challenging than program control work.

52. The job itself requires very little use of my talents or skills.

TRAINING AND EDUCATION

Use the same scale to describe the ammount of training and education you have received to do your job.

53. A technical background is necessary to do my job.

54. A technical background is helpful in doing my job.

55. I have received the proper ammount of training to do my job.

THE MATRIX ORGANIZATION

Use the following scale to describe how you feel about the matrix organization.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Slightly Disagree
4 = Neither Agree nor Disagree
5 = Slightly Agree
6 = Moderately Agree
7 = Strongly Agree

56. The Program Control Division has total control over the placement of its personnel.

57. The matrix organization is a good way to manage personnel.

58. The Program Control Division is aware of how well I do my job.

59. I do not know much about how a matrix organization operates.

60. Did you participate in the AFIT survey during April 1988 administered by Capt Tom Connors?
    1. Yes
    2. No
    3. I can't remember

COMMENTS

Please use the following section to describe what changes (if any) you feel are necessary in your organization. Include also any changes you would like to see made in your particular job situation.

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Abstract

The purpose of this study was to determine if a job redesign intervention could improve the job characteristics of a group of company grade officers in an Air Force Program Control office. This phase of the study built upon the foundation laid by the diagnostic phase of Connors (1988).

The survey questionnaire incorporated parts of the *Job Diagnostic Survey*, the Minnesota Satisfaction Questionnaire, and ad-hoc items pertaining to the issues of training, challenge, and the matrix organization. This survey was distributed to the enriched group and a comparison group whose organization was similar in structure and duties.

The data from this phase of the study was compared to baseline and normative data. The criterion variables were the five core dimensions of the Job Characteristics Model and ad-hoc measures. This analysis showed some improvement in the enriched organization for individuals exposed to the entire study. The data also reinforced the possibilty that the overall problem may not be isolated to just the studied organizations, but might be job related.

This job redesign intervention should be continued by the enriched organization to see if a longer time period with the intervention improves the job characteristics.